Remarks

Examiner Chen is thanked for the thorough Office Action.

In the Claims

Claim 6 has been canceled.

Claims 8, 16 and 23 have been amended in a manner believed to overcome the second 35 U.S.C. §112, second paragraph, rejection directed to these claims.

Claim Objections

Double Patenting

The Rejection of Claims 1 To 25 Under the Judicially Created Doctrine of Obviousness-Type Double Patenting as Being Unpatentable Over Claims 1 To 16 of U.S. Patent No. 6,602,560 (Cheng et al.)

The rejection of claims 1 to 25 under the judicially created doctrine of Obviousness-Type Double Patenting as being unpatentable over claims 1 to 16 of U.S. Patent No. 6,602,560 (Cheng et al.) (the '560 Cheng Patent) is acknowledged.

Applicants respectfully disagree with this Double Patenting rejection as the instant invention claims, inter alia: forming a first USG film over a processing chamber inner wall; forming an FSG film over the first USG film; forming a second USG film over the FSG film and forming a nitrogen-containing film over the second USG film to form a UFUN season film.

In contrast, independent claim 1 of the '560 Cheng Patent claims, inter alia: forming a silicon-rich oxide film over at least part of the inner surface of a HDP-CVD chamber; the silicon-rich oxide film having pores ranging from about 30 to 90 volume percent of the total volume of the silicon-rich oxide film; conducting at least one deposition process of fluorine-doped silicate glass in the HDP-CVD chamber to generate residual fluorine for diffusing into the pores of the silicon-rich oxide film; flowing an NF_3-comprising process gas into the HDP-CVD chamber in the presence of microwave power to form a plasma thereby removing fluorine from the silicon-rich oxide film to form a fluorine-containing gas; and removing the fluorine-containing gas from the HDP-CVD chamber.

Applicants' are unable to discern how the only difference between their claimed invention and claims 1 to 16 of Cheng is "the elimination of a high density plasma CVD chamber."

Therefore Applicants' urge that their instantly claimed invention is therefore not obvious over claims 1 to 16 of the '560 Cheng Patent under the judicially created doctrine of Obviousness-Type Double Patenting.

Claim Rejections

The Rejection Of Claims 1 To 25 Under 35 U.S.C. §112, Second Paragraph, as Being Indefinite for Failing to Particularly Point Out and Distinctly Claim the Subject Matter Which Applicant Regards as the Invention

The rejection of claims 1 to 25 under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention is acknowledged.

Claim 6 has been canceled to overcome its 35 U.S.C. §112, second paragraph, rejection.

Applicants respectfully disagree with the Examiner that the term "production runs" is vague and confusing as to what it is referred to. At page 13 of the specification as filed it is stated "The method of the present invention allows for three production runs within the chamber before cleaning/seasoning steps are required." Therefore Applicants urge that the term "production runs" is not vague and confusing vis a vis claims 8, 16 and 23.

Claims 8, 16 and 23 have been amended in a manner believed to overcome the second 35 U.S.C. §112, second paragraph, rejection directed to these claims.

Applicants urge that "turbo," as used in claims 9, 17 and 24 is a term known to one skilled in the art, i.e. "turbo" is short for turbo pump, i.e. pumping down to a set pressure (mT, e.g.) as is clear from the specification and the claims as filed.

Further, for " O_2 side" and "SiH_4 side" the term "side" is a term known to one skilled in the art, i.e. "side" refers to the introduction of O_2 and SiH_4 into the side of the processing chamber (as opposed to the top of the processing chamber, e.g.). It is noted that "1W side-RF" in claims 9, 17 and 24 instead refers to the introduction of one (1) watt (W) RF into the side of the processing chamber.

The Rejection Of Claims 1 To 25 Under 35 U.S.C. §103(a) as Being Unpatentable Over Rossman et al. (U.S. Patent No. 6,121,161)

The rejection of claims 1 to 25 under 35 U.S.C. §103(a) as being unpatentable over Rossman et al. (U.S. Patent No. 6,121,161) (the '161 Rossman Patent) is acknowledged.

Applicants' wish to briefly point up the claimed features of their invention which are believed to be not shown nor obvious from the teachings of known references in this field. The claims all clearly define forming a first USG film over a processing chamber inner wall; forming an FSG film over the first USG film; forming a second USG film over the FSG film and forming a nitrogen-containing film over the second USG film to form a UFUN season film.

On the other hand, the '161 Rossman Patent discloses: depositing a precursor film substantially covering at least a portion of the surfaces of the components of a substrate processing chamber – the precursor film being undoped silicon oxide; and then depositing a protective seasoning film substantially covering at least a portion of the precursor film – the protective seasoning film being silicon nitride (SiN), silicon oxynitride (SiON) or phosphorous-doped silicate glass (PSG); wherein the contaminants have a lower diffusion rate in the protective seasoning film than in the components of the chamber.

Rossman does not teach or suggest forming a UFUN season film over a processing chamber inner wall comprising a first USG film, an overlying FSG film, a second USG film and an upper nitrogen-containing film. Instead, Rossman only teaches forming an undoped silicon oxide film over at least a portion of the surfaces of components of a substrate processing chamber and then forming an overlying protective seasoning film that is SiN, SiON or PSG wherein the contaminants have a lower diffusion rate in the protective seasoning film than in the components of the chamber.

Independent claims 1 ,11 and 19 patently distinguish over Rossman under §103(a) for the above reasons and further because, inter alia: the prior art lack a suggestion that the reference should be modified in a manner required to meet the claims; the Examiner has made a strained interpretation of the reference that could be mode only be hindsight; and the Examiner has not presented a convincing line of reasoning as to why the claimed subject matter as a whole, including its differences over the prior art, would have been obvious.

Claims 1 to 5 and 7 to 10 depend from independent claim 1; claims 12 to 18 depend from independent claim 11; and claims 20 to 25 depend from independent claim 19; and are believed to distinguish over the combination for the reasons previously cited.

Therefore claims 1 to 5 and 7 to 25 are submitted to be allowable over the cited references and reconsideration and allowance are respectfully solicited.

CONCLUSION

In conclusion, reconsideration and withdrawal of the rejections are respectively requested. Allowance of all claims is requested. Issuance of the application is requested.

It is requested that the Examiner issue only written actions in this application.

Respectively submitted,

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